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# NOTICES OF NEW BOOKS.

*How We Think.* By JOHN DEWEY. Boston, C. D. Heath & Co., 1910.—pp. vi, 224.

This volume undertakes to adapt the results of the author's logical theories to the guidance of the teacher in dealing with the rapidly multiplying studies in the modern curriculum. As the preface states, the "book represents the conviction that the needed steadying and centralizing factor is found in adopting as the end of endeavor that attitude of mind, that habit of thought, which we call scientific." The volume states in a simple way the different problems of thinking, with their solutions, and then makes applications to concrete situations and discusses the sort of training the child must be given to cope with them successfully. The whole treatment is marked by an entire absence of formalism; in fact, its aim seems to be to rid the school work of routine and it advocates the use of any means that may be adequate to that end. Wherever schematisation is indulged in, there is always a final caution that the method suggested should not crush out spontaneity, the recognized source of all thinking in the vital sense.

Thinking always grows out of uncertainty. "Demand for the solution of a perplexity is the steadying and guiding factor in the entire process of reflection." The solution of the problem is in terms of suggestions from past experience and prior knowledge, and these, when they present themselves, must be confirmed by related knowledge or by test. All training of thought consists in subjecting the different methods of problem-solving to suitable conditions and rules. But training thought implies certain native powers or endowments. These are found in curiosity, suggestion, and orderliness. The first sets the problem, the second makes possible solutions, and the third is essential if the solutions offered are to be properly tested before they are accepted. These are seen to be dependent for their development upon the habits of teachers and others in the environment, upon the nature of the subjects studied, and current aims and ideals. The result of this training should be to develop habits of logical thinking. Logical thinking means not the observance of any set forms. These too often lead to routine that renders thought unnecessary. Rather the student must be led to the habits of reflection that are adequate for the subject and for the individual's stage of development. If this end is attained through any study, that subject will be disciplinary.

Five steps may be distinguished in every complete act of thought. The first is the occurrence of a difficulty; the second is the definition of the difficulty; the third, a suggestion; fourth, the elaboration of the idea; and fifth, the corroboration of the idea and the formation of a concluding belief. No rigid rules can be formulated for the development of the processes, but the trained mind is the one that carries each step far enough to fulfil the conditions of the problem. It is pointed out that in this process there is a constant movement back and forth from observation to general principles and from general principles to observation. This represents the relative part played by induction and deduction in all thinking. Neither can stand in isolation if they are to be of value. Analysis and synthesis are correlative in very much the same way. Interesting applications and elucidations are given of judgment used in the author's well-known sense, and a chapter is devoted to a treatment of meanings and of the uses to which they are put in every-day life and particularly in education. Much practical advice is given in two chapters on "Concrete and Abstract Thinking" and "Empirical and Scientific Thinking."

In the preceding paragraphs the reviewer has been summarizing very briefly the first two parts of the volume, devoted respectively to the preliminary problems in connection with training thought, and to the more theoretical logical problems. The third and last part is devoted more particularly to the practical applications. The first four chapters of this part treat, in order, of activity, language, observation and information, and the recitation as means or instruments in training thought. A fifth chapter embodies the general conclusions. Each of the practical chapters insists that problem-solving be made central, no matter what material is used, whether in play or in manual training. Activities are of value only in so far as they give independence of thought, and this they will do if they grow out of a problem and are adapted to its solution. Observation must similarly have a definite end — must have a bearing upon a problem that is real at the moment. Information, too, is of value, or at least of most value, if given after it has been prepared for by showing the child its bearing upon some problem, seen to be pressing for solution. It is suggested in the chapter on the recitation that the five formal steps of Herbart may be replaced to advantage by the five stages in the act of thought. It is emphasized throughout, however, that these steps cannot be rigidly followed, that any fixed system takes the life out of a recitation, and that the steps should at the most be apparent to the teacher, not to the pupil. The essence of the recitation should be to make it grow out of a real problem, grow through thought to a definite solution, and that this solution should be made general and applied in a real way.

Much more might be said both of the logical theory at the basis of the discussion and of the applications that are made to education. The volume is full of varied suggestions on both topics, but this may suffice to give an idea of the aim of the book and of the way in which its aim is attained. Suffice it to say that in both particulars it will well repay reading whether by the expert or the novice. It at once gives a concise summary of the author's logical theories, and constitutes a fascinating practical treatise on the art of teaching. It is to be welcomed as the first attempt to apply the modern logic, and as a discussion of educational aims and methods from a new point of view. In the opinion of the reviewer it is highly successful in each of its undertakings.

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